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## Fact Sheet: China and U.S. Ratification By the Numbers

### ***United States and China Pledges to Paris Agreement Account for Half of Agreement's Climate Impact***

*Climate Interactive and MIT Sloan have provided the following calculations and data from their C-ROADS simulation and other sources.*

**Current emissions:** Currently, the United States and China together produce 38% of global greenhouse gas emissions. The Paris Agreement can come into force when 55 UNFCCC parties representing 55% of global greenhouse gas emissions have ratified the Agreement.

- The United States currently produces 18% of global greenhouse gas emissions and China emits 20%, for a total of 38%.

**Contribution of the pledges to addressing climate change:** The China and United States pledges to the Paris Agreement would deliver half of the agreement's climate impact.

- The Intended Nationally Determined Contributions (INDCs) of China and the United States would deliver 51% of the avoided cumulative carbon dioxide emissions from 2016-2100 from all of the INDCs in the Paris Agreement. Percent of avoided cumulative carbon dioxide is a measure of a country's actions to prevent future climate change.
- The United States would deliver 19% of the avoided cumulative carbon dioxide emissions from 2016-2100. China would deliver 31%, for a total of 51% together (note: they do not sum due to rounding).
  - Of the avoided cumulative carbon dioxide emissions from 2016-2100 from the United States and China pledges, 38% would come from the United States and 62% would come from China.

**Pledges to the Paris Agreement (INDCs):** China has pledged to peak carbon dioxide (CO<sub>2</sub>) emissions by 2030, decrease the carbon intensity of its economy, increase non-fossil energy sources, and increase forest stocks. The United States has pledged to reduce emissions of all greenhouse gases 26-28% below 2005 levels by 2025.

**Avoided emissions from the pledges:** If the China and the United States meet their pledges, 1210 gigatons (billion tons) of carbon dioxide would be kept out of the atmosphere.

**Current per capita emissions:** Today, average greenhouse gas emissions per person are 10 tons/year in China and 22 tons/year in the United States.

**Historic responsibility for causing climate change:** The United States with 4.4% of the global population, has emitted 21% of all carbon dioxide to date since 1870. China, with 19% of the global population, has emitted 12%.

- **Between 1990 and 2016**, the United States and China have each emitted 17% of the world's carbon dioxide.

**Capacity to address climate change:** The United States produces 17% of global GDP. China produces 20%.

**Effect of global pledges:** The pledges submitted to the Paris Agreement would result in expected warming by 2100 of 3.5°C (6.3°F) with a range of uncertainty from 2.1 to 4.7°C (3.7 to 8.4°F), assuming no action post 2025-2030, the end of the pledge period.

**Requirements to meet Paris goals:** Deeper, earlier emissions cuts are needed to limit warming to well below 2°C or all the way to the Paris Agreement goal of 1.5°C. Analysis by Climate Interactive shows that in one possible scenario to limit warming to 1.5°C, it would be necessary for the United States to decrease its emissions approximately 10% per year, more aggressively than pledged in its INDC, starting in 2020. And China would need to peak its emissions by 2025, not 2030, and begin reducing emissions approximately 3.5% per year thereafter.

### Pledge and Business as Usual Scenarios

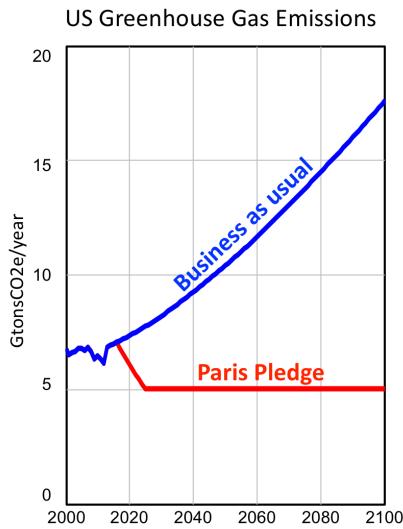


Figure 1: Greenhouse gas emission reductions from the U.S. INDC (red) relative to the Business as usual scenario (blue). The U.S. has committed to reducing greenhouse gas emissions 26% below 2005 levels by 2025. We have assumed that, after 2025, emissions stay flat.

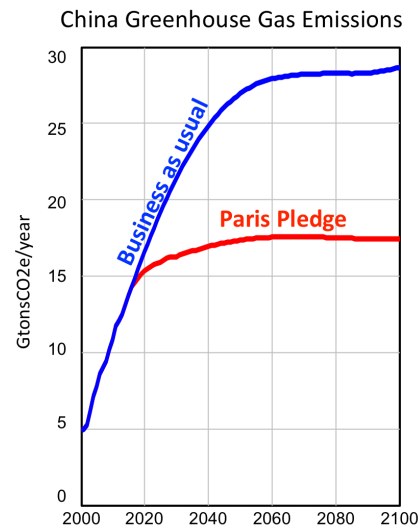


Figure 2: Greenhouse gas emission reductions from the China INDC (red) relative to the Business as usual scenario (blue). China has committed to peaking emissions of carbon dioxide (CO<sub>2</sub>) by 2030 and reforesting land. We have assumed that, after 2030, CO<sub>2</sub> emissions stay flat but other greenhouse gas emissions continue to rise slightly.

The [Climate Scoreboard](#) analysis is produced by Climate Interactive in partnership with the Massachusetts Institute of Technology Sloan School of Management (MIT Sloan). The Scoreboard is calculated with the C-ROADS (Climate-Rapid Overview and Decision Support) computer simulation, which is calibrated to the Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report results. C-ROADS is [downloadable](#) and available for public use. Climate Interactive is a Washington D.C.-based not-for-profit think tank. The data are based on the countries' current commitments. The Paris Agreement requests that countries make new pledges every five years, improving those commitments.

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